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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,913	09/28/2000	Jeff B. Jordan	7721.105	7786

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EXAMINER

DABNEY, PHYLES HA LARVINIA

ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/670,913

Applicant(s)

JORDAN, JEFF B.

Examiner

Phylesha L Dabney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,2,5-9 and 12-20 is/are rejected.
7) ☒ Claim(s) 3-4, 10-11, 21-22 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the response received on 15 April 2004 in which claims 1-22 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, 5-9, and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiramoto (JP 8-102994), in view of Ono (JP 55-016546-A).

Regarding claims 1 and 6, Hiramoto teaches a loudspeaker (fig. 2-3) with a T-yoke (30-31; 40-41) comprising: a body having a base (30, 40) and a pole piece (31, 41) with a sealed cavity (A, 25, 32, 34; B, 25, 42-43) formed within the pole piece; and an inlet/outlet (32, 34; 42, 43) formed in the body. Hiramoto does not teach using a fluid, such as water, oil, etc., for cooling the loudspeaker. Ono teaches using water or oil, instead of air in a loudspeaker to radiate heat (cooling) away from the magnetic circuit for preventing the temperature of the voice coil from rising since the thermal conductivity of a fluid is higher than air. Therefore, it would have been obvious to one of ordinary skill in the art to use a fluid in the invention of Hiramoto as taught by Ono for removing heat from the magnetic circuit of the loudspeaker.

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Regarding claims 2 and 9, Hiramoto in view of Ono teaches the base has an aperture (Hiramoto, at 33) formed therein which communicates with the cavity and a base plug (Hiramoto, 33, 35) sealingly engages the aperture.

Regarding claim 5, Hiramoto in view of Ono teach a central wall (Hiramoto, at 36) divides the cavity into two cells. Hiramoto in view of Ono does not teach a top passage within the cavity connects the two cells. However, the examiner takes official notice that it is known to make cutouts or depressions in the pole piece to facilitate heat dissipating fluid flow through the loudspeaker.

Regarding claim 7, in the alternate embodiment of Hiramoto (fig. 3), Hiramoto teaches including top passages (43) through the sidewalls thereby creating apertures as an alternate means of moving heat through the loudspeaker. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include apertures in the sidewalls (31, fig. 2) for circulating heat through the loudspeaker. In addition, Hiramoto teaches including plugs (fig. 2, 33, 35) over the apertures for restricting the flow of fluid through passages. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include plugs over the apertures for controlling the flow of fluid. Furthermore, Hiramoto in view of Ono does not teach the plugs positioned therein the apertures; however, the examiner takes official that it is known to bore holes or provide cut-ins into the center pole-piece for attaching shorting rings, etc., to prevent interference with the voice coil bobbin movement. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to position the plugs within the pole piece for the reasons stated above.

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Regarding claim 8, Hiramoto teaches a loudspeaker having a T-yoke with a pole piece (31, 41), a magnet (fig. 2, 20) surrounding the pole piece, a voice coil (13) positioned between the pole piece and the magnet (20), and a cone (11) connected to the voice coil, the T-yoke comprising: a body having a base (30, 40) and a pole piece (31, 41) with a sealed cavity (A, 25, 32, 34; B, 25, 42-43) formed within the pole piece; and an inlet/outlet (32, 34; 42, 43) formed in the body. Hiramoto does not teach using a fluid, such as water, oil, etc., for cooling the loudspeaker. Ono teaches using water or oil, instead of air in a loudspeaker to radiate heat (cooling) away from the magnetic circuit for preventing the temperature of the voice coil from rising since the thermal conductivity of a fluid is higher than air. Therefore, it would have been obvious to one of ordinary skill in the art to use a fluid in the invention of Hiramoto as taught by Ono for removing heat from the magnetic circuit of the loudspeaker.

Regarding claim 12, Hiramoto in view of Ono teaches the cone (Hiramoto, 11) is positioned in a speaker basket (Hiramoto, 15) with a field plate (Hiramoto, 23) positioned between the magnet and the speaker basket; a damper (Hiramoto, at 16) is connected at an outer perimeter to the basket and at an inner perimeter to the voice coil. Hiramoto in view of Ono does not teach at least one electrical lead passing into the basket and connecting to the voice coil; however, the examiner takes official notice that it is known in the art to have an electric lead pass into the basket and connect to the voice coil for supplying alternating current to the magnetic system and cause the puss-pull of the diaphragm. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to pass an electric lead into the basket of Hiramoto in view of Ono and connect to the voice coil for the reasons stated above.

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Regarding claim 13, Hiramoto in view of Ono also teaches placing a coolant fluid reservoir (Ono, at 19) at the fluid inlet and the fluid outlet for radiating heat away from the magnetic circuit.

Regarding claim 14, Hiramoto in view of Ono teaches a pump (Ono, 25) circulates coolant fluid between the T-yoke and the fluid reservoir.

Regarding claim 15, see the rejection of claims 8 and 13.

Regarding claim 16, see the rejection of claim 14.

Regarding claim 17, Hiramoto in view of Ono teaches hose connectors (17, 18) extending from the inlet and outlet.

Regarding claim 18, Hiramoto in view of Ono teaches the system further includes a heat exchanger (Ono, 19).

Regarding claim 19, Hiramoto in view of Ono teaches the reservoir performs the function of a heat exchanger (Ono, 19).

Regarding claim 20, see the rejection of claim 1.

Allowable Subject Matter

2. Claims 3-4, 10-11, and 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

3. Applicant's arguments filed have been fully considered but they are not persuasive.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The applicant's invention calls for a "sealed cavity" shown and disclosed in the claims as a cavity (33), which has two fitted tubes/openings (32) extending therethrough utilizing fluid flow within the tubing. The combination of Hiramoto and Ono similarly teaches a "sealed cavity" shown and disclosed as a cavity (A, 25, 32, 34; B, 25, 42-43) which has two tubes/openings (32, 34; 42, 43) formed through utilizing fluid flow within the tubing. Therefore, the examiner contends that the combination of Hiramoto and Ono satisfy the claimed limitations.

4. In response to applicant's argument that the intended function of the prior art is destroyed by utilizing flowing fluid in the speaker of Hiramoto in view of teachings presented by Ono, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Hiramoto teaches a speaker structure utilizing air to dissipate heat from the magnetic assembly including the coil. Ono teaches that speaker structures can use air to dissipate heat, but it is beneficial to utilize and is well known to use fluid flow within speaker structures to dissipate heat because the thermal conductivity properties of fluids are higher than air; therefore, the amount of heat dissipated from the speaker structure will be higher. This finding and combination clearly has the advantage of increased heat dissipation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phylesha L Dabney whose telephone number is 703-306-5415. The examiner can normally be reached on Mondays, Tuesdays, Wednesdays, Fridays 8:30-5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 703-305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 1, 2004


PLD


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